wider chamber and 149 m^3 50 (5280 cu ft) for the narrower chamber. The gases will remain in the chamber approximately 1.50 seconds, which, with a temperature drop of 200° C. (360° F.) per second, means a temperature of approximately 1500° C. (2732° F.) for the gases leaving the chamber. Referring to the curve (Fig. 184) and allowing for a drop in calorific intensity of about 200°, it will be seen that a preheat of the air and gas of between 800° and 1000° C. (1472° to 1832° F.) will be required. Allowing for a possible loss of temperature in the necks, cinder pockets and uptakes, the checkerwork will be proportioned to supply a preheat of 1200° C. (2192° F.).

The distance the jet of flame must drop below the bridge or port sill, in order to permit 'the sintering of the bottom, has been fixed at 1200 mm (48 in). A resultant velocity of the air and gas can be assumed, and this will fix the resultant angle of the two jets. The higher the resultant velocity is assumed, the less the resultant angle will be, and the further beyond the center of the chamber will be the point where the maximum depression of the jet of flame occurs.

High velocities, in addition, cause the incoming end of the chamber to work cold and the outgoing end to work hot, while it is desirable that both ends of the chambers work as uniformly as possible. High velocities for either the gas or the air mean reduced port areas, and high velocities for the outgoing products of combustion, which in turn call for an increased draft depression in order to pull the gases through the ports. This draft depression creates a suction acting to pull air in through the valves, flues and chamber walls. At the same time, it is necessary to have sufficient draft to draw the waste gases out of the chamber and down through the checkerwork, but the lower this draft depression the less the tendency to induce air leakage or

infiltration.

As the flame has to drop 1200 mm (48 in) in one-half of 14 m 00 (46.00 ft), which is the length of the furnace, an angle somewhat greater than 10° must be allowed for the trajectory of the jet. Yesmann's formula for this case is

Metric: $H = \frac{v^2 \sin^2 \theta}{2g} \times \frac{}{m} t$

English: $H = X$ —--*,